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Introduction

TB cases in Virginia continue to plateau with 329 cases reported in 2004 as compared to 332 cases in 2003. In 2004, foreign-born cases increased by 4.3%, Hispanic cases increased by 27%, and cases among those aged 25-44 increased by 11%. The increase among Hispanic cases in Virginia, where they account for 24% of the cases reported in 2004, is underscored by the national TB trends. For the first time, in the United States, TB was reported more frequently among Hispanics than among any other group.¹ Due to the small number of TB cases reported annually in Virginia we expect some fluctuation from year to year in the characteristics described in this report.

Demographic Characteristics

In 2004, 49% of TB cases were female and 51% were male. This represents an increase in female cases from 133 in 2003 to 162 in 2004 and a decrease in cases among males, from 199 cases in 2003 to 167 cases in 2004. This change represents in shift among the US-born TB cases as compared to 2003. Among US-born females TB cases increased 54% in 2004 and among US-born males TB cases decreased 34%. In 2004, the distribution of TB cases by race/ethnicity shifted slightly with an increase reported among Hispanics and a decrease among non-Hispanic whites. Among Asian/Pacific Islanders and non-Hispanic Blacks, the proportions remain virtually unchanged. Among non-Hispanic whites, 50 cases were reported in 2004 as compared to 63 cases in 2003 for a 21% decrease. In 2003, 63 cases were reported among Hispanics as compared to 80 cases in 2004. Hispanic cases increased 27% and account for 24% of all cases reported.

Twenty pediatric cases, aged 0 to 14 occurred in 2004 as compared to 19 cases in 2003. Among the 15-24 year old age group, 36 cases were reported for a decrease of 23% over 2003. One hundred twenty-eight cases were reported among the 25-44 year old age group for an increase of 11%. Among the cases aged 45-64, 83 cases were reported and among the cases over the age of 64, 62 cases were reported.

In 2004, 216 or 66% of Virginia's TB cases were reported among foreign-born persons. Moreover nearly one third of Virginia's cases are reported among the foreign-born population aged 25-44. The diversity of cultures and countries of origin among Virginia's TB cases is remarkable. These cases represent 43 countries of origin and speak 17 languages other than English. The top five countries of origin include India, the Philippines, Mexico, Ethiopia and Peru. Of the 205 cases with a date of arrival documented, 126 or 61% have been residents of US five years or less.

Geographic Distribution

At least one TB case was reported from 34 of the 35 health districts and the distribution of cases across the state remains relatively stable. Within the health regions, Northern and Eastern reported increases, Central and Northwest reported decreases and Southwest region remained the same. The Northern region reported 168 cases for an increase of 7% over 2003. Central region reported 51 cases for a 22% decrease. Eastern region reported 59 cases for an 11% increase. Northwest region reported 24 cases for a 17% decrease and Southwest region reported 22 cases.

Selected Risk Factors

Several risk factors are associated with TB including occupational risk, congregate living, co-infection with HIV, substance use and being born in a country of high TB prevalence. In 2004, six health care and three migrant workers were reported with TB. Fifteen residents of long term care facilities, including 10 from nursing homes were reported compared to 24 cases in 2003. Seven

¹ Centers for Disease Control and Prevention. Trends in Tuberculosis—United States, 2004. MMWR 2005;54: 247.

cases were reported among prison or jail inmates and 7 cases were reported among homeless persons. Among the 215 cases with documented HIV test results 7% were infected with HIV and half of these cases were aged 25-44. Overall, 4.6% of Virginia's cases were reported with HIV as compared to 6.3% of cases in 2003. In 2004 29 cases reported excessive alcohol use and twelve cases reported injection drug use (IDU) or non-injection drug use.

Drug Resistance

Of the 248 cases of TB that had both a positive culture and drug susceptibility testing performed, drug resistance was found in 13 cases. One case of multidrug-resistant TB (MDR-TB) was reported with 11 cases resistant to one first-line drug and one case resistant to two first-line drugs. By definition MDR-TB is resistance to isoniazid and rifampin.

Mortality

In 2004, 19 (5.8%) TB cases died during treatment and 7 (2.1%) cases were diagnosed at death or post-mortem. Late entry into treatment, other underlying medical conditions, and other causes of death may have contributed to these untimely deaths.

Treatment Outcomes

For 2003, the year with the most complete data available, 90% of the drug-susceptible cases completed therapy within 12 months. Patients who died at diagnosis or during treatment, and patients who had drug resistance to rifampin are not included in the completion of therapy calculation.

Contact Investigations

In 2003, contacts were identified for 96% of the newly reported AFB smear positive cases. Of those, 95% were evaluated for infection and disease. Among the 585 people identified with latent TB infection, 432 or 74% were started on treatment. Among these contacts, 192 or 44% completed treatment for latent TB infection.

Table 1. Number and Rate per 100,000 of Tuberculosis Cases: Virginia and United States, 1996-2004

Year	Virginia		United States*	
	No.	Rate	No.	Rate
1996	349	5.3	21,337	8.0
1997	349	5.3	19,851	7.4
1998	339	5.2	18,361	6.8
1999	334	4.9	17,531	6.4
2000	292	4.1	16,377	5.8
2001	306	4.3	15,989	5.6
2002	315	4.5	15,075	5.2
2003	332	4.5	14,871	5.1
2004	329	4.4	14,511	4.9

US data from: CDC. Reported Tuberculosis in the United States, 2003. Atlanta, GA: US DHHS, CDC, September 2004.

US 2004 data from: CDC. Trends in Tuberculosis--United States, 2004. MMWR 2005;54(10):245.

Table 2. Tuberculosis Cases and Rate per 100,000 by Health Region: Virginia, 2000-2004

Region	2000			2001			2002			2003			2004		
	No.	%	Rate	No.	%	Rate	No.	%	Rate	No.	%	Rate	No.	%	Rate
Total	292	100	4.1	306	100	4.3	315	100	4.5	332	100	4.5	329	100	4.4
Central	33	11.3	2.8	50	16.3	4.2	45	14.3	3.8	65	19.6	5.2	51	15.5	4.1
Eastern	67	22.9	3.9	50	16.3	2.9	53	16.8	3.1	59	17.8	3.3	64	19.5	3.6
Northern	149	51.0	8.2	174	56.9	9.6	177	56.2	9.8	157	47.3	8.1	168	51.1	8.5
Northwest	22	7.5	2.2	12	56.9	1.2	15	4.8	1.5	29	8.7	2.6	24	7.3	2.2
Southwest	21	7.2	1.6	20	6.5	1.5	25	7.9	1.9	22	6.6	1.7	22	6.7	1.7

Table 3. Tuberculosis Cases by Demographics and Location: Virginia, 2000-2004

	2000		2001		2002		2003		2004	
Total Cases	292		306		315		332		329	
	No.	%	No.	%	No.	%	No.	%	No.	%
Sex										
Female	121	41.4	125	40.8	137	43.5	133	40.1	162	49.2
Male	171	58.6	181	59.2	178	56.5	199	59.9	167	50.8
Race/Ethnicity										
Asian/Pacific Islander	94	32.2	85	27.8	94	29.8	105	31.6	98	29.8
Black, Not Hispanic	96	32.9	101	33.0	86	27.3	101	30.4	100	30.4
Hispanic	46	15.8	70	22.9	69	21.9	63	19.0	80	24.3
White, Not Hispanic	56	19.2	50	16.3	66	21.0	63	19.0	50	15.2
Other	na	na	na	na	na	na	na	na	1	0.30
Age										
0-14	13	4.5	11	3.6	16	5.1	19	5.7	20	6.1
15-24	31	16.8	37	12.1	36	11.4	47	14.2	36	10.9
25-44	108	37.0	128	41.8	114	36.2	115	34.6	128	38.9
45-64	91	31.2	75	24.5	83	26.3	89	26.8	83	25.2
>64	49	16.8	55	18.0	66	21.0	62	18.7	62	18.8
Place of Birth										
Foreign-born	187	64.0	193	63.1	189	60.0	207	62.3	216	65.7
US-born	105	36.0	113	36.9	126	40.0	125	37.7	113	34.3
Health Region										
Central	33	11.3	50	16.3	45	14.3	65	19.6	51	15.5
Eastern	67	22.9	50	16.3	53	16.8	59	17.8	64	19.5
Northern	149	51.0	174	56.9	177	56.2	157	47.3	168	51.1
Northwest	22	7.5	12	3.9	15	4.8	29	8.7	24	7.3
Southwest	21	7.2	20	6.5	25	7.9	22	6.6	22	6.7

Table 4. Tuberculosis Cases by Demographics and Region: Central, 2000-2004

	2000		2001		2002		2003		2004	
Total Cases	33		50		45		65		51	
	No.	%	No.	%	No.	%	No.	%	No.	%
Sex										
Female	8	24.2	17	34.0	24	53.3	19	29.2	19	37.3
Male	25	75.8	33	66.0	21	46.7	46	70.8	32	62.7
Race/Ethnicity										
Asian/Pacific Islander	8	24.2	7	14.0	7	15.6	11	16.9	6	11.8
Black, Not Hispanic	19	57.6	28	56.0	25	55.6	37	56.9	28	54.9
Hispanic	0	0.0	5	9.4	3	6.7	9	13.8	10	19.6
White, Not Hispanic	6	18.2	10	20.0	10	22.2	8	12.3	7	13.7
Age										
0-14	1	3.0	3	6.0	1	2.2	1	1.5	2	3.9
15-24	0	0.0	2	4.0	3	6.7	6	9.2	6	11.8
25-44	16	48.5	18	36.0	9	20.0	21	32.3	18	35.3
45-64	10	30.3	16	32.0	21	46.7	28	43.1	19	37.3
>64	6	18.2	11	22.0	11	24.4	9	13.8	6	11.8
Place of Birth										
Foreign-born	11	33.3	18	36.0	12	26.7	22	33.8	21	41.2
US-born	22	66.7	32	64.0	33	73.3	43	66.2	30	58.8

Table 5. Tuberculosis Cases by Demographics and Region: Eastern, 2000-2004

	2000		2001		2002		2003		2004	
Total Cases	67		50		53		59		64	
	No.	%	No.	%	No.	%	No.	%	No.	%
Sex										
Female	28	41.8	19	38.0	22	41.5	15	25.4	30	46.9
Male	39	58.2	31	62.0	31	58.5	44	74.6	34	53.1
Race/Ethnicity										
Asian/Pacific Islander	20	29.9	5	10.0	10	18.9	17	28.8	14	21.9
Black, Not Hispanic	31	46.3	34	68.0	28	52.8	27	45.8	29	45.3
Hispanic	5	7.5	5	8.8	4	7.5	4	6.8	5	7.8
White, Not Hispanic	11	16.4	6	12.0	11	20.8	11	18.6	16	25.0
Age										
0-14	3	4.5	0	0.0	0	0.0	0	0.0	2	3.1
15-24	6	13.0	4	8.0	3	5.7	4	6.8	2	3.1
25-44	21	31.3	14	28.0	11	20.8	16	27.1	21	32.8
45-64	24	35.8	17	34.0	24	45.3	15	25.4	22	34.4
>64	13	19.4	15	30.0	15	28.3	24	40.7	17	26.6
Place of Birth										
Foreign-born	24	35.8	11	22.0	15	28.3	22	37.3	22	34.4
US-born	43	64.2	39	78.0	38	71.7	37	62.7	42	65.6

Table 6. Tuberculosis Cases by Demographics and Region: Northern, 2000-2004

	2000		2001		2002		2003		2004	
Total Cases	149		174		177		157		168	
	No.	%	No.	%	No.	%	No.	%	No.	%
Sex										
Female	63	42.3	80	46.0	77	43.5	86	54.8	91	54.2
Male	86	57.7	94	54.0	100	56.5	71	45.2	77	45.8
Race/Ethnicity										
Asian/Pacific Islander	61	40.9	71	40.8	73	41.2	72	45.9	73	43.5
Black, Not Hispanic	40	26.8	32	18.4	26	14.7	30	19.1	34	20.2
Hispanic	34	22.8	55	32.2	59	33.3	35	22.3	52	31.0
White, Not Hispanic	14	9.4	16	9.2	19	10.7	20	12.7	9	5.4
Age										
0-14	7	4.7	8	4.6	14	7.9	11	7.0	10	6.0
15-24	22	25.9	29	16.7	28	15.8	27	17.2	24	14.3
25-44	64	43.0	86	49.4	84	47.5	68	43.3	76	45.2
45-64	43	28.9	31	17.8	25	14.1	32	20.4	31	18.5
>64	13	8.7	20	11.5	26	14.7	19	12.1	27	16.1
Place of Birth										
Foreign-born	136	91.3	155	89.1	154	87.0	143	91.1	154	91.7
US-born	13	8.7	19	10.9	23	13.0	14	8.9	14	8.3

Table 7. Tuberculosis Cases by Demographics and Region: Northwest, 2000-2004

	2000		2001		2002		2003		2004	
Total Cases	22		12		15		29		24	
	No.	%	No.	%	No.	%	No.	%	No.	%
Sex										
Female	11	50.0	5	41.7	5	33.3	9	31.0	12	50.0
Male	11	50.0	7	58.3	10	66.7	20	69.0	12	50.0
Race/Ethnicity										
Asian/Pacific Islander	3	13.6	1	8.3	2	13.3	3	10.3	4	17.4
Black, Not Hispanic	2	9.1	3	25.0	0	0.0	3	10.3	3	13.0
Hispanic	6	27.3	2	10.5	3	20.0	14	48.3	11	47.8
White, Not Hispanic	11	50.0	6	50.0	10	66.7	9	31.0	5	21.7
Other	na	na	na	na	na	na	na	na	1	4.2
Age										
0-14	2	9.1	0	0.0	0	0.0	3	10.3	4	16.7
15-24	2	11.1	1	8.3	2	13.3	8	27.6	4	16.7
25-44	4	18.2	5	41.7	3	20.0	6	20.7	8	33.3
45-64	8	36.4	4	33.3	5	33.3	7	24.1	7	29.2
>64	6	27.3	2	16.7	5	33.3	5	17.2	1	4.2
Place of Birth										
Foreign-born	11	50.0	4	191.7	6	40.0	18	62.1	15	62.5
US-born	11	50.0	8	66.7	9	60.0	11	37.9	9	37.5

Table 8. Tuberculosis Cases by Demographics and Region: Southwest, 2000-2004

	2000		2001		2002		2003		2004	
Total Cases	21		20		25		22		22	
	No.	%	No.	%	No.	%	No.	%	No.	%
Sex										
Female	11	52.4	4	20.0	9	36.0	4	18.2	10	45.5
Male	10	47.6	16	80.0	16	64.0	18	81.8	12	54.5
Race/Ethnicity										
Asian/Pacific Islander	2	9.5	1	5.0	2	8.0	2	9.1	1	4.5
Black, Not Hispanic	4	19.0	4	20.0	9	36.0	4	18.2	6	27.3
Hispanic	1	4.8	3	14.3	0	0.0	1	4.5	2	9.1
White, Not Hispanic	14	66.7	12	60.0	14	56.0	15	68.2	13	59.1
Age										
0-14	0	0.0	0	0.0	1	4.0	4	18.2	2	9.1
15-24	1	5.6	1	5.0	0	0.0	2	9.1	0	0.0
25-44	3	14.3	5	25.0	7	28.0	4	18.2	5	22.7
45-64	6	28.6	7	35.0	8	32.0	7	31.8	4	18.2
>64	11	52.4	7	35.0	9	36.0	5	22.7	11	50.0
Place of Birth										
Foreign-born	5	23.8	5	25.0	2	8.0	2	9.1	4	18.2
US-born	16	76.2	15	75.0	23	92.0	20	90.9	18	81.8

Table 9. Tuberculosis Cases by Region and Place of Birth: Virginia, 2000-2004

Health Region	2000		2001		2002		2003		2004	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	105	187	113	193	126	189	125	207	113	216
Central	22	11	32	18	33	12	43	22	30	21
Eastern	43	24	39	11	38	15	37	22	42	22
Northern	13	136	19	155	23	154	14	143	14	154
Northwest	11	11	8	4	9	6	11	18	9	15
Southwest	16	5	15	5	23	2	20	2	18	4

Table 10. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Central Region, 2000-2004

Race/Ethnicity	2000		2001		2002		2003		2004	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	22	11	32	18	33	12	43	22	30	21
Asian/Pacific Islander	0	8	0	7	0	7	0	11	0	6
Black, Not Hispanic	18	1	24	4	24	1	34	3	24	4
Hispanic	0	0	0	5	0	3	1	8	0	10
White, Not Hispanic	4	2	8	2	9	1	8	0	6	1

Table 11. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Eastern Region, 2000-2004

Race/Ethnicity	2000		2001		2002		2003		2004	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	43	24	39	11	38	15	37	22	42	22
Asian/Pacific Islander	0	20	0	5	0	10	0	17	1	13
Black, Not Hispanic	30	1	33	1	26	1	27	0	27	2
Hispanic	3	2	0	5	0	4	0	4	0	5
White, Not Hispanic	10	1	6	0	12	0	10	1	14	2

Table 12. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Northern Region, 2000-2004

Race/Ethnicity	2000		2001		2002		2003		2004	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	13	136	19	155	23	154	14	143	14	154
Asian/Pacific Islander	0	61	1	70	0	73	2	70	2	71
Black, Not Hispanic	6	34	7	25	4	22	3	27	6	28
Hispanic	1	33	4	51	9	50	2	33	3	49
White, Not Hispanic	6	8	7	9	10	9	7	13	3	6

Table 13. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Northwest Region, 2000-2004

Race/Ethnicity	2000		2001		2002		2003		2004	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	11	11	8	4	9	6	11	18	9	15
Asian/Pacific Islander	0	3	0	1	0	2	1	2	0	4
Black, Not Hispanic	2	0	2	1	0	0	1	2	2	1
Hispanic	1	5	0	2	0	3	1	13	3	8
White, Not Hispanic	8	3	6	0	9	1	8	1	4	1
Other	na	na	na	na	na	na	na	na	na	1

Table 14. Tuberculosis Cases by Race/Ethnicity and Place of Birth: Southwest Region, 2000-2004

Race/Ethnicity	2000		2001		2002		2003		2004	
	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born	US-born	Foreign-born
Total	16	5	15	5	23	2	20	2	18	4
Asian/Pacific Islander	0	2	0	1	0	2	2	0	0	1
Black, Not Hispanic	3	1	3	1	8	0	3	1	5	1
Hispanic	0	1	0	3	0	0	0	1	0	2
White, Not Hispanic	13	1	12	0	15	0	15	0	13	0

Table 15. Tuberculosis Cases by Selected Risk Factors: Virginia, 2000-2004

	2000		2001		2002		2003		2004	
	292		306		315		332		329	
Total Cases	No.	%	No.	%	No.	%	No.	%	No.	%
Occupation										
Health Care	10	3.4	6	2.0	10	3.2	8	2.4	6	1.8
Migrant	2	0.7	6	2.0	3	1	3	0.9	3	0.9
Corrections	1	0.3	1	0.3	1	0.3	0	0.0	0	0.0
Type of Residence										
Long Term Care	21	7.2	10	3.3	18	5.7	24	7.2	15	4.6
Prison/Jail	6	2.1	3	1.0	4	1.3	6	1.8	7	2.1
Homeless	15	5.1	11	3.6	17	5.4	12	3.6	7	2.1
Co-Morbidity										
HIV	14	4.8	29	9.5	12	3.8	21	6.3	15	4.6
Place of Birth										
Foreign-born	190	65.1	194	63.4	189	60.0	208	62.7	216	65.7
Substance Use										
Alcohol	18	6.1	17	5.6	25	7.9	33	9.9	29	8.8
IDU	1	0.3	2	0.7	2	1.6	8	2.4	3	0.9
Non-IDU	2	0.7	4	1.3	5	1.6	4	1.2	9	2.7

Table 16. Tuberculosis Cases by Selected Risk Factors: Central Region 2000-2004

	2000		2001		2002		2003		2004	
	33		50		45		65		51	
Total Cases	No.	%	No.	%	No.	%	No.	%	No.	%
Occupation										
Health Care	1	3.0	2	4.0	1	2.2	3	4.6	0	0.0
Migrant	1	3.0	0	0.0	0	0.0	0	0.0	0	0.0
Corrections	1	3.0	0	0.0	1	2.2	0	0.0	0	0.0
Type of Residence										
Long Term Care	1	3.0	2	0.0	4	8.9	4	6.2	2	3.9
Prison/Jail	3	9.1	0	0.0	3	6.7	1	1.5	0	0.0
Homeless	3	9.1	2	4.0	3	6.7	6	9.2	1	2.0
Co-Morbidity										
HIV	3	9.1	8	16.0	2	4.4	4	6.2	4	7.8
Place of Birth										
Foreign-born	11	33.3	18	36.0	12	26.7	22	33.8	21	41.2
Substance Use										
Alcohol	4	12.1	7	14.0	4	8.9	12	18.5	7	13.7
IDU	1	3.0	1	2.0	1	2.2	3	4.6	1	2.0
Non-IDU	1	3.0	2	4.0	4	8.9	2	3.1	1	2.0

Table 17. Tuberculosis Cases by Selected Risk Factors: Eastern Region, 2000-2004

Total Cases	2000		2001		2002		2003		2004	
	67		50		53		59		64	
	No.	%	No.	%	No.	%	No.	%	No.	%
Occupation										
Health Care	1	3.7	2	4.0	1	1.9	1	1.7	2	3.1
Migrant	1	1.5	4	8.0	3	5.7	2	3.4	3	4.7
Corrections	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	5	7.5	2	4.0	2	3.8	3	5.1	1	1.6
Prison/Jail	0	0.0	1	2.0	0	0.0	1	1.7	1	1.6
Homeless	2	3.0	0	0.0	3	5.7	3	5.1	2	3.1
Co-Morbidity										
HIV	5	7.5	5	10.0	3	5.7	3	5.1	5	7.8
Diabetes	1	1.5	7	14.0	4	7.5	6	10.2	5	7.8
Place of Birth										
Foreign-born	24	35.8	11	22.0	15	28.3	22	37.3	22	34.4
Substance Use										
Alcohol	4	6.0	2	4.0	8	15.1	7	11.9	2	3.1
IDU	0	0.0	1	2.0	0	0.0	3	5.1	0	0.0
Non-IDU	1	1.5	1	2.0	1	1.9	0	0.0	1	1.6

Table 18. Tuberculosis Cases by Selected Risk Factors: Northern Region 2000-2004

Total Cases	2000		2001		2002		2003		2004	
	149		174		177		157		168	
	No.	%	No.	%	No.	%	No.	%	No.	%
Occupation										
Health Care	6	4.0	2	1.1	7	4.0	2	1.3	3	1.8
Migrant	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Corrections	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	10	6.7	3	1.7	10	5.6	15	9.6	8	4.8
Prison/Jail	3	2.0	1	0.6	1	0.6	3	1.9	1	0.6
Homeless	6	4.0	6	3.4	8	4.5	3	1.9	4	2.4
Co-Morbidity										
HIV	6	4.0	16	9.2	6	3.4	12	7.6	5	3.0
Place of Birth										
Foreign Born	136	91.3	155	89.1	154	87.0	143	91.1	154	91.7
Substance Use										
Alcohol	5	3.4	6	3.4	5	2.8	5	3.2	7	4.2
IDU	0	0.0	0	0.0	1	0.6	2	1.3	2	1.2
Non-IDU	0	0.0	0	0.0	1	0.6	2	1.3	3	1.8

Table 19. Tuberculosis Cases by Selected Risk Factors: Northwest Region, 2000-2004

Total Cases	2000		2001		2002		2003		2004	
	22		12		15		29		24	
	No.	%	No.	%	No.	%	No.	%	No.	%
Occupation										
Health Care	1	4.5	0	0.0	0	0.0	1	3.4	3	12.5
Migrant	0	0.0	2	16.7	0	0.0	1	3.4	0	0.0
Corrections	0	0.0	1	8.3	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	2	9.1	0	0.0	1	6.7	2	6.9	2	8.3
Prison/Jail	0	0.0	0	0.0	0	0.0	1	3.4	1	4.2
Homeless	3	13.6	1	8.3	1	6.7	0	0.0	0	0.0
Co-Morbidity										
HIV	0	0.0	0	0.0	2	13.3	1	3.4	0	0.0
Place of Birth										
Foreign Born	11	50.0	4	33.3	6	40.0	18	62.1	15	62.5
Substance Use										
Alcohol	3	13.6	4	5.0	1	6.7	4	13.8	7	29.2
IDU	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Non-IDU	0	0.0	0	0.0	0	0.0	0	0.0	2	8.3

Table 20. Tuberculosis Cases by Selected Risk Factors: Southwest Region 2000-2004

Total Cases	2000		2001		2002		2003		2004	
	21		20		25		22		22	
	No.	%	No.	%	No.	%	No.	%	No.	%
Occupation										
Health Care	1	4.8	0	0.0	1	4.0	1	4.5	0	0.0
Migrant	0	0.0	2	10.0	0	0.0	0	0.0	0	0.0
Corrections	0	0.0	1	5.0	0	0.0	0	0.0	0	0.0
Type of Residence										
Long Term Care	0	0.0	0	0.0	0	0.0	0	0.0	3	13.6
Prison/Jail	0	0.0	1	5.0	0	0.0	0	0.0	2	9.1
Homeless	1	4.8	2	0	0	0.0	0	0.0	0	0.0
Co-Morbidity										
HIV	0	0.0	0	0.0	0	0.0	1	4.5	1	4.5
Place of Birth										
Foreign Born	5	23.8	5	25.0	2	8.0	2	9.1	4	18.2
Substance Use										
Alcohol	2	9.5	1	5.0	5	20.0	5	22.7	6	27.3
IDU	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Non-IDU	0	0.0	1	5.0	0	0.0	0	0.0	2	9.1

Table 21. Tuberculosis Cases with Drug Resistance: Virginia, 2000-2004

Drug Resistance	2000		2001		2002		2003		2004*	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total	43	18.9	34	13.7	32	12.1	34	13.6	13	4.0
Any firstline drug	36	15.8	24	9.6	28	10.6	32	12.3	12	3.6
Multidrug (MDR-TB)**	7	3.1	10	4	4	1.5	2	0.8	1	0.3

*Due to changes in definitions, streptomycin is no longer considered a firstline drug. The drop in the number of resistant cases is an artifact of the new definition.

**Multidrug resistance or MDR is by definition resistance to isoniazid and rifampin.

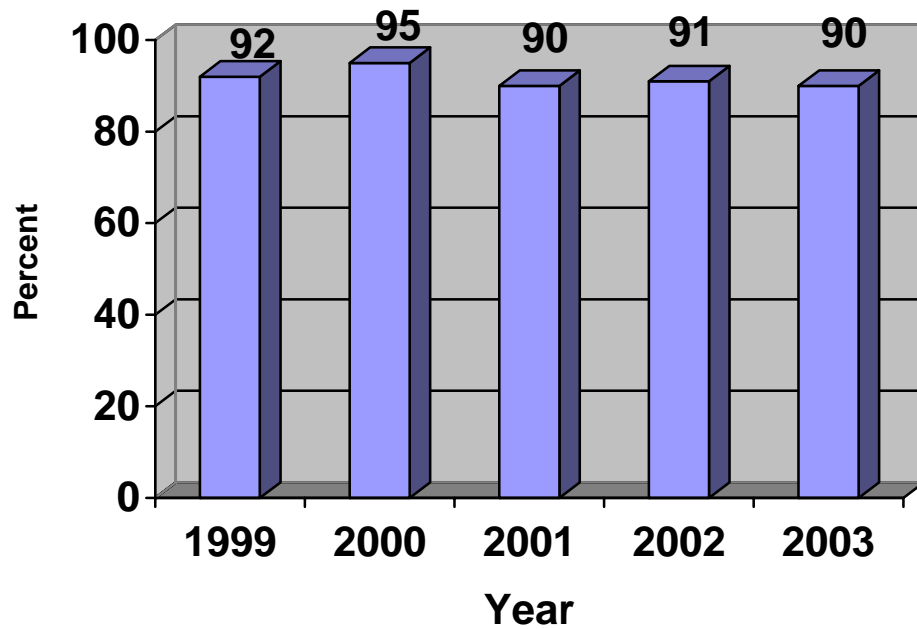
Table 22. Tuberculosis Mortality: Virginia, 2000-2004*

Total Cases	2000		2001		2002		2003		2004	
	292		306		315		332		329	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total Deaths	24	8.2	26	8.5	19	6	26	6.3	26	7.9
Dead at Time of Diagnosis	7	2.4	7	2.3	4	1.3	4	1.3	7	2.1
Died During Treatment	17	5.8	19	6.2	15	4.8	22	5.1	19	5.8

*If a person is diagnosed with TB post-mortem or diagnosed with TB at the time of death they are coded as dead at the time of diagnosis. If they died during TB treatment, they are coded as died during treatment. There may be people in either of these categories whose underlying cause of death is not TB.

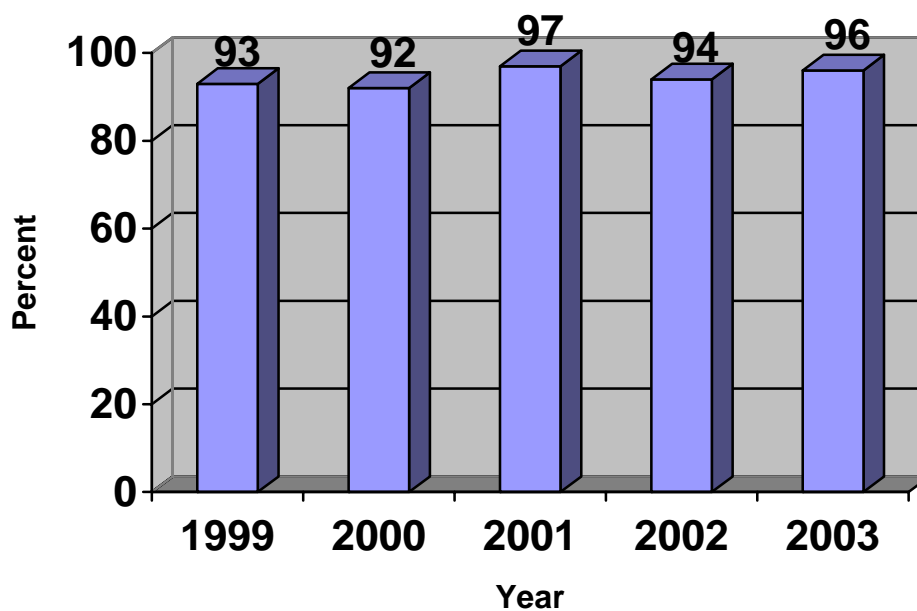
National Program Objectives

Figure 1. Completion of Therapy for Drug Susceptible Tuberculosis Cases: Virginia, 1999-2003



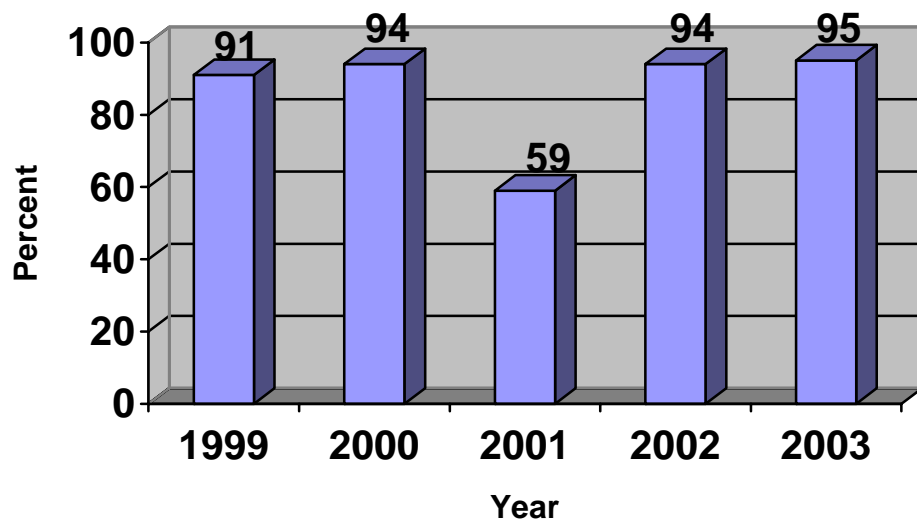
The national program objective for completion of therapy is 90%.

**Figure 2. Percent Sputum Smear Positive Cases with
Contacts Identified: Virginia, 1999-2003**



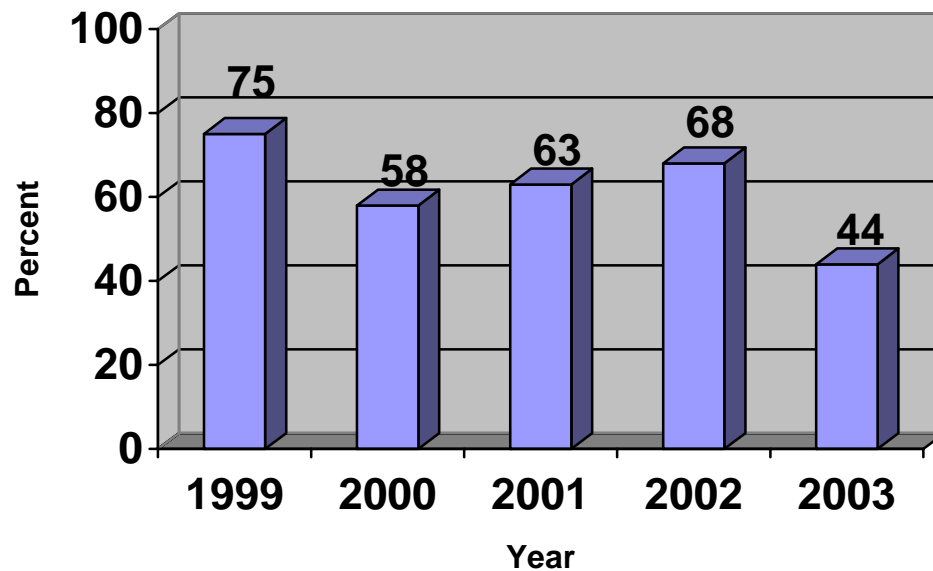
The national program objective for identification of contacts is 90%.

Figure 3. Percent Sputum Smear Positive Cases with Contacts Evaluated: Virginia, 1999-2003



The national program objective for evaluation of contacts is 95%.

**Figure 4. Percent Contacts by Completion of LTBI
Treatment: Virginia, 1999-2003**



The national program objective for completion of treatment for LTBI is 85%.

Technical Notes

TB disease is a reportable condition as defined in the *Regulations for Disease Reporting and Control*. In addition, TB infection in children under age 4 is also a reportable condition. The Division of Tuberculosis Control (DTC) conducts surveillance for TB disease in the entire population and for TB infection among children. It collects, analyzes, and disseminates data as an integral part of TB control.

Rates per 100,000

In Tables 1 and 2 rates for Virginia were calculated using population estimates for 1994 through 1999 provided by the Virginia Employment Commission. Rates for 2000-2002 were calculated using 2000 Census data released by the United States Bureau of the Census. Rates for 2003 were calculated using population estimates released by the United States Bureau of the Census, April 9, 2004. Rates for 2004 were calculated using population estimates from the United States Bureau of the Census, Population Estimates Program accessed on February 1, 2005. All rates are calculated per 100,000 persons in the population.

Definitions

Pediatric: In this report “pediatric” refers to persons up to and including the age of 14 years old.

Tuberculosis Case Definition²

Cases confirmed as official morbidity in Virginia and included in this report meet the following case definition:

Clinical description

A chronic bacterial infection caused by *Mycobacterium tuberculosis*, characterized pathologically by the formation of granulomas. The most common site of infection is the lung, but other organs may be involved.

Clinical Case Definition

A case that meets the following criteria:

- A positive tuberculin skin test
- Other signs and symptoms compatible with tuberculosis (e.g., an abnormal, unstable [i.e., worsening or improving] chest radiograph, or clinical evidence of current disease)
- Treatment with two or more antituberculosis medications
- A completed diagnostic evaluation [*to rule out other conditions*]
- [*Virginia also requires documented clinical improvement on treatment*]

Laboratory criteria for diagnosis

- Isolation of *M. tuberculosis* from a clinical specimen* or
- Demonstration of *M. tuberculosis* from a clinical specimen by nucleic acid amplification test**, or
- Demonstration of acid-fast bacilli in a clinical specimen when a culture has not been or cannot be obtained.

Case classification

Confirmed: a case that meets the clinical case definition or is laboratory confirmed.

² CDC. Case Definitions for infectious conditions under public health surveillance. MMWR 1997;46(No. RR-10):40-41.

*Use of rapid identification techniques for *M. tuberculosis* (e.g., DNA probes and mycolic acids high-pressure liquid chromatography performed on a culture from a clinical specimen) are acceptable under this criterion.

**Nucleic acid amplification (NAA) tests must be accompanied by culture for mycobacteria species. However, for surveillance purposes, CDC will accept results obtained from NAA tests approved by the Food and Drug Administration (FDA) and used according to the approved product labeling on the package insert.